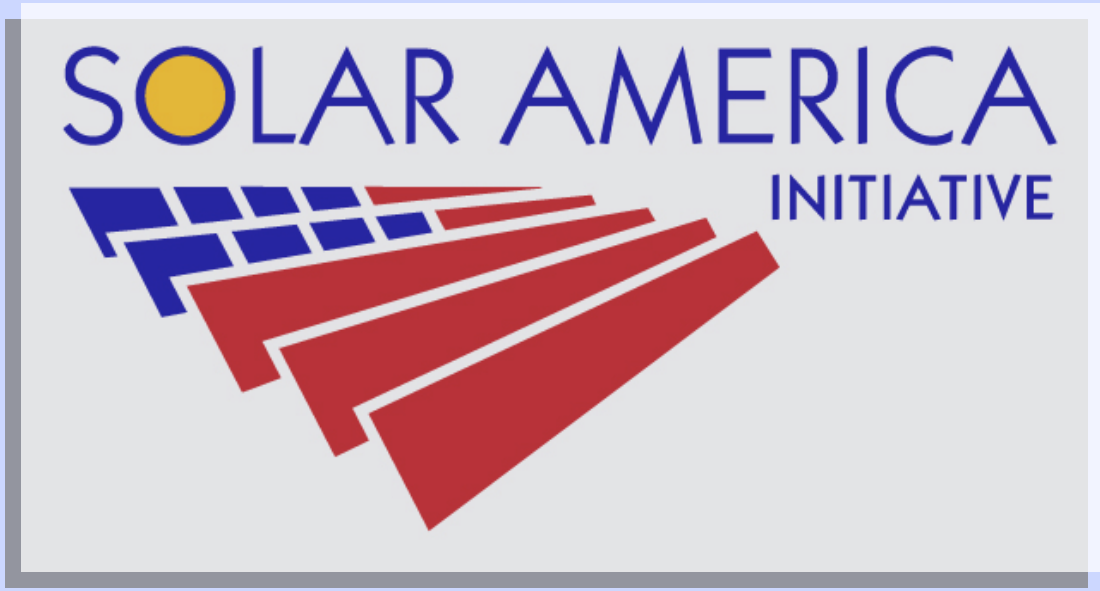
Solar America Initiative

Golden Field Office, NREL, and Sandia
Roles in SAI Implementation



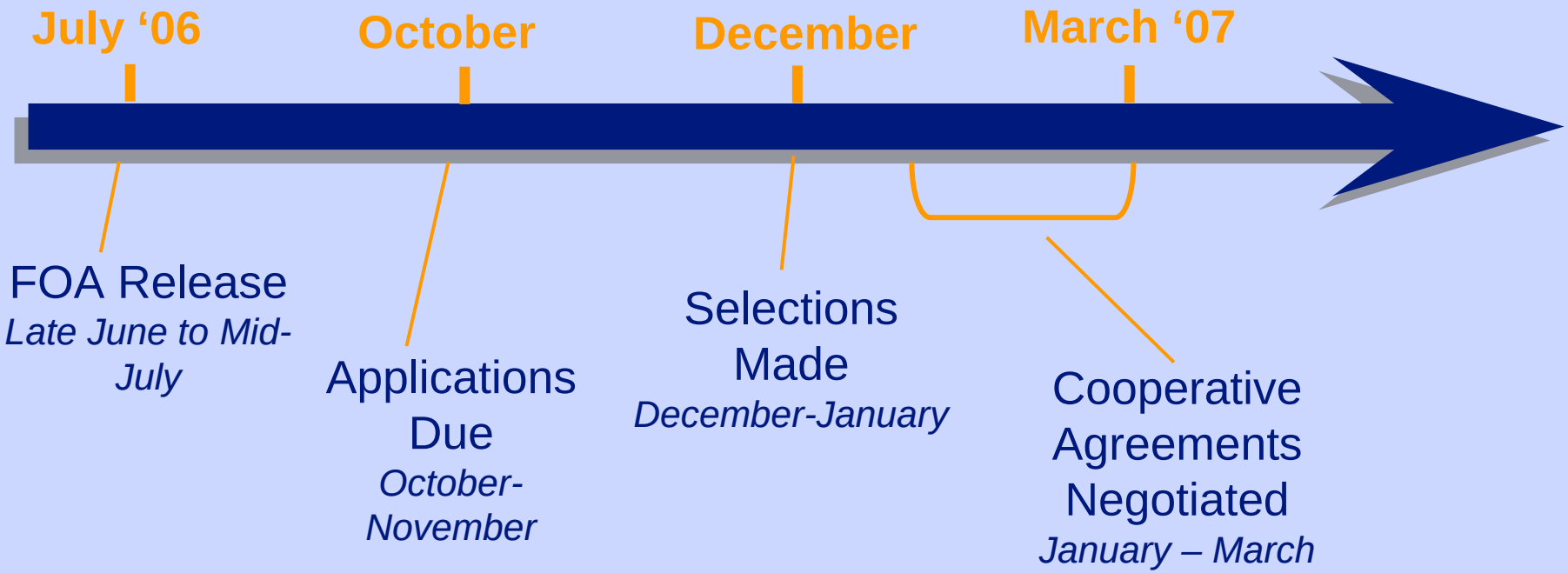
SAI Financial Assistance Overview

- The SAI TPP and Technology Acceptance funding opportunities will be administered by the DOE's Project Management Center at the Golden Field Office
- These will take the form of Funding Opportunity Announcements (**FOA**)
- In this construct, proposals are referred to as **Applications**
- Awards will take the form of **Cooperative Agreements (as opposed to contracts)**
- **Awardees are called Recipients**

Financial Assistance 101

- Financial Assistance
  - Governed by 10 CFR 600 regulations
  - Not subject to most requirements under the FAR
  - Important differences between Financial Assistance and Acquisition:
    - DOE not purchasing products/services for government.
    - DOE investing government resources in R&D projects to meet SAI programmatic goals to benefit nation and domestic industry.
    - Applicants propose approach to meeting/exceeding SAI programmatic goals. DOE selects best projects to meet those goals.
    - Cooperative Agreements require substantial involvement by DOE. DOE is a partner in projects through actions that include, but are not limited to, technical direction, independent stage-gate reviews, key decision points, technical project monitoring, financial monitoring, and peer reviews.
    - No avenue for protests. Unsuccessful applicants provided written and/or oral de-brief of strengths and weaknesses of their applications.

TPP Estimated Timeline



*Technology Acceptance Timeline - TBD

Restrictions

- TPP Recipients must have established manufacturing or system integration capacity
  - Federal Facility Research and Development Centers (e.g., National Labs) cannot be prime Recipients
- TPP Recipients and partners must have U.S. presence in manufacturing, systems integration, and/or R&D
- An organization can be a TPP Prime Recipient on only one award
- An organization may participate in more than one TPP
- All DOE funds must be spent in the U.S. Location of cost share funds expenditures is negotiable

Application Review/Selection Process

- Applications must be submitted by FOA closing date/time
- Questions regarding all FOA requirements must be submitted through Industry Interactive Procurement System (IIPS). Responses to all questions through IIPS.
- Applications initially screened for responsiveness to published FOA requirements
- Applications that pass initial screening undergo Merit Review process using evaluation criteria
- Merit Review Committee (MRC) made up of DOE and independent reviewers (may include National Lab reviewers)
- MRC members required to sign COI/non-disclosure statements
- MRC will review and score only against published evaluation criteria
- Selections made on basis of Merit Review scores, program policy factors, and best value in terms of meeting SAI/TPP goals

Cooperative Agreements Overview

- Cooperative agreements planned to be for three years with annual reviews and downselects, as appropriate
- Funding subject to annual appropriations
- Award will be with the TPP Recipient. Partners will be subrecipients.
- A minimum of 50% cost share (from non-Federal sources) calculated against total project costs required of all TPPs
- Project management plans will be required for all projects including resource-loaded schedules
- Stage-gate reviews will be required for all projects

INTELLECTUAL PROPERTY

DOE addresses intellectual property (patent and data rights) issues through: Intellectual Property Clause Sets in Awards; Patent Waivers; and Cross-licensing Arrangements, pursuant to various statutory and regulatory authorities, including:

- 10 C.F.R. Part 600
- Federal Acquisition Regulations as implemented through DEAR
- Bayh-Dole Statute
- Federal Non-nuclear Energy Research and
- Development Act

NREL and Sandia Roles

- Will be supporting the SAI/TPPs
  - Modeling and analytical support for FOA development and TPP monitoring
  - Independent testing and evaluation of deliverables
  - May be TPP partners
    - Points of Contact to coordinate participation will be identified and their names posted on IIPS after the TEM

NREL and Sandia R&D

- NREL and Sandia facilities and personnel will support the goals of the SAI through:
  - Cooperation with TPPs for R&D on commercial and manufacturing prototype technology
  - Non-TPP-specific laboratory-scale prototype technology
  - Long-term, potentially revolutionary R&D
  - Access by the TPPs of key laboratory facilities

Examples of National Lab Facilities Available to All TPPs on a No-Fee Basis

(Not intended to be comprehensive)

- Science and Technology Facility's PDIL (NREL)
- Thin-film deposition laboratories (NREL)
- PV Optimization Lab (Sandia)
- PV Systems Evaluation Lab (Sandia)
- Outdoor Test Facility (NREL)
- Distributed Energy Technologies Laboratory (Sandia)
- Southwest Regional Experiment Station (NM State U)
- Southeast Regional Experiment Station (Florida Solar Energy Center)

96%
Complete

Construction/Occupancy Schedule

• *Construction Contract Award*	*September, 2004*
• *Construction Initiated*	*January, 2005*
• *Substantial Completion**	*May 8, 2006*
• *Initiate 1st Phase of 7 Phase Move Plan**	*June 12, 2006*
• *Final Completion**	*August 8, 2006*
• *All First Level Labs Operational **	*September 30, 2006*
• *Complete 7th Phase of Move Plan**	*December 4, 2006*
• *All Second Level Labs Operational**	*March 30, 2007*

* *Tentative dates*

Science & Technology Facility Goals:

- ***Provide industry support on processing related issues*** *(improved understanding of process chemistry facilitated by integrated materials characterization capabilities)****;***
- ***Serve U.S. industry as a focus for developing in-situ techniques and intelligent processing critical to manufacturing improvement;***
- ***Provide a mechanism for rapid transfer of processes and techniques that have been developed in federal and other research laboratories to U.S. industry;***
- ***Provide a new capability for U.S. industry to benchmark validate, and qualify new processes and techniques under simulated manufacturing conditions.***

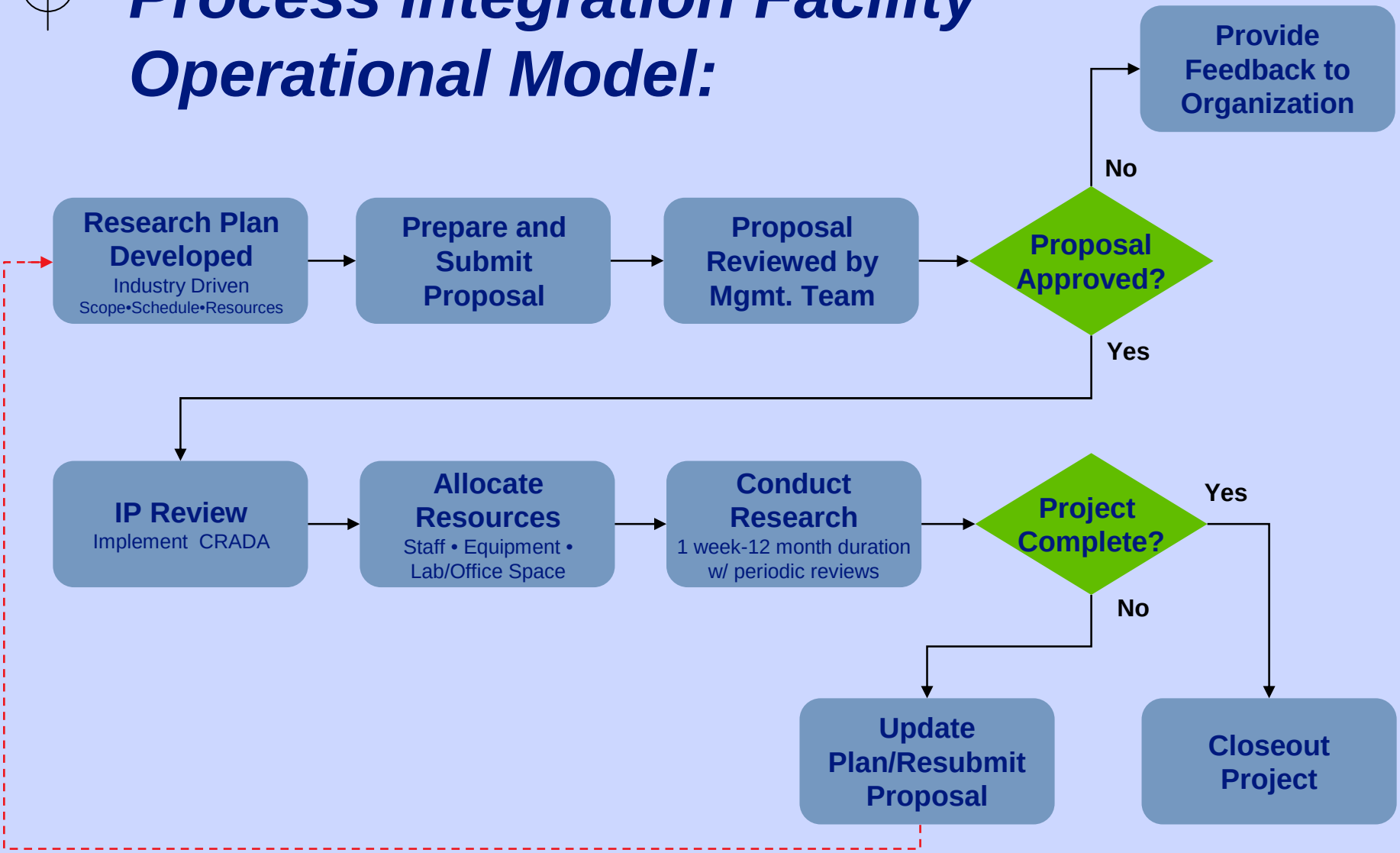
Tool Set Applications/Industry Benefits:

- *Cooperative R&D to develop next generation, high-performance devices;*
- *Cooperative R&D to develop high-performance manufacturing processes;*
- *Demo site for industry developed tools;*
- *Process improvement using tools that have been developed and supplied by industry;*
- *Development of next generation diagnostic tools;*
- *Access to NREL scientific expertise, as well as our extensive array of state-of-the-art research capabilities (including Measurement and Characterization Division and Electronic Materials and Devices Division facilities).*

Process Integration Facility Access:

- *Facility provided as a key resource to TPP funded proposals on a **no-fee** basis;*
- *Non-SAI funded proposals will be considered, but may require a negotiated usage fee;*
- *Access to process integration facilities will require a submitted proposal that clearly identifies project goals, expected outcomes, scope, schedule, and required resources;*
- *Proposals will be reviewed by the Process Integration Facility Management Team and will be accepted and reviewed on a quarterly basis;*
- *Project duration can be from 1-week to 1-year and projects are renewable contingent upon approval.*

Process Integration Facility Operational Model:



Photovoltaic Systems Optimization Laboratory (PVSOL)

This is a fully instrumented facility for evaluating all factors influencing system energy production, long-term reliability, and safety. Capabilities are applied both in-house and for system field testing. Supports component manufacturers and system integrators. Data provides validation of system performance models.

Photovoltaic System Evaluation Laboratory (PSEL)

This lab performs comprehensive electrical, thermal, optical characterization supporting PV system design models. Diagnostics in support of manufacturers and integrators, including:

- Outdoor performance using ASTM standards, Sandia protocol/model, all operating conditions; also being implemented at ASU/PTL and FSEC.
- Traceability for commercial lab accreditation (FSEC, ASU/PTL)
- Baseline and periodic retesting, long-term field aging, degradation rates
- Dark IV analysis, modules and bypass diodes
- UV, thermal (IR), and ultrasonic imaging and diagnostic analysis
- Module sampling from field aged systems.

Distributed Energy Technology Laboratory (DETL)

The DETL:

- Performs evaluations on power electronic inverters, packaged PV systems, intelligent system controllers, battery charge controllers, and hybrid systems.
- Evaluate for code conformance, performance, and compliance with utility interconnection standards.
- Measure conducted and radiated radio-frequency emissions, temperature, audible noise, response to high-voltage surges, and variations in ac grid voltage and frequency.

Other DOE National Laboratory Facilities

- The DOE national lab complex offers a wide variety of facilities, R&D expertise, and equipment that could support the SAI TPPs

- The SAI website will later include links to national lab complex resources (http://www1.eere.energy.gov/solar/solar_america/)